

PREMIUM ON SAFETY

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UNITED STATES AIRCRAFT INSURANCE GROUP

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AMERICA'S FIRST NAME IN AVIATION INSURANCE

More Than a Feeling

How the Best Safety Programs Measure Alertness and Mitigate Fatigue Risk

MATTHEW VAN WOLLEN with contributions from Kate Jaramillo and Sara Coats
Pulsar Informatics

Every aviation professional has heard some version of the same question: "How tired are you?"

It's an important question, but also an incomplete one. Fatigue is unique because it is a biological state, and humans are biologically individual. Sometimes we feel exhausted but are still capable of performing duties safely and reliably. At other times, we feel perfectly fine while our alertness, reaction time, and decision-making abilities have already begun to decline.

Relying solely on the answer to the question "How tired are you?" leaves a gap that may negatively impact the safety of an operation. A best practice among aviation organizations combines subjective self-assessments with objective alertness testing as part of a comprehensive approach to fatigue risk management.

Self-Assessments Measure Feelings

No one knows more about how a crew member feels than the crew member. Encouraging crews to report how they feel is sensible, and it's also important that self-reporting fatigue be viewed as professional behavior rather than a sign of personal weakness.

A simple self-assessment like the Karolinska Sleepiness Scale (KSS) allows individuals to honestly evaluate their current level of sleepiness on a scale from extremely alert to extremely sleepy. Other survey questions may be useful to gauge how much sleep a person obtained last night, or whether they feel fit for duty. But subjective assessments have limitations.

Some people underestimate their fatigue. Others overestimate it. Motivation, experience, personality, and operational pressure can all influence how someone rates themselves. And then there's the issue of comparability—two crew members may give the same answer on the KSS, but what that value means to each of them may be completely

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Why Train?

PAUL RATTÉ
USAIG Safety Programs



Recurrent training is part of most pilots' careers. Your window comes around again and off you go. Do you ever stop to think about what you're aiming to accomplish? Maybe you see the sim instructor as having the agenda and you're just there to experience (or endure) it. Across several years of teaching simulator courses, I saw many pilots arrive primed to engage while others had way more intentionality about their gym and dinner plans. Engaged pilots' skills benefited more. Staying mindful of why you're there will help you make the most of your training.

A few hours in a sim across a few days is unlikely to produce a renaissance in any one—let alone all—of the many competencies involved in flying. But it will allow you to safely explore and hone your abilities in ways you can't in daily flying. Recurrent training is not about your instructor, the FAA, your employer, or the CFRs. It's *for you*.

Perhaps a few familiar sayings can help dial that in:

"Flying is hours of sheer boredom punctuated by moments of stark terror." Hopefully that's not your experience but take the point. More than most professions flying can, at a time not of your choosing, demand

Continues next page

different. That's why self-reporting should not be relied upon as the only source of information about crew fatigue.

Objective Testing Measures Performance

An objective assessment answers a different question: “How alert is the brain right now?”

The gold standard in objective measures of alertness is the Psychomotor Vigilance Test (PVT).¹ The PVT measures reaction time and attention by evaluating how quickly an individual responds to visual stimuli over a sustained period of 1 to 3 minutes.

Research has consistently shown that reaction time slows as fatigue increases—even when people feel alert. This matters because fatigue isn't only caused by lack of sleep. Sleep debt, extended wakefulness, and circadian misalignment can all affect how someone feels.² Crew members may not even realize the extent to which these fatigue stressors are affecting their decision-making abilities.

An objective measure such as the PVT helps remove uncertainty from the conversation. Just as important, it protects operators from the opposite situation, providing an impartial assessment that supports fair, consistent operational decisions. Neither subjective nor objective assessments are perfect on their own. But together, they create a far more complete picture.

The Power of Using Both

Pairing the Karolinska Sleepiness Scale with the Psychomotor Vigilance Test is a best practice to measure alertness and manage fatigue risk.³ The two tools measure different, yet equally important, dimensions of wake-state stability:

- The KSS captures how the individual feels.
- The PVT measures how the individual is actually performing.

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Why Train from page 1

immediate, accurate fusion of all your knowledge and skills just to survive. A chance to safely explore dynamic scenarios and practice accessing and applying those faculties at game speed is invaluable to build confidence in what's working and identify gaps you need to work on.

“We do it this way because we’ve always done it this way.” Flying is characterized by required procedures accomplished through technique. Inertia in these can be good or bad. Recurrent training provides a gauge of how well your habits and practices are staying up to date and procedurally sound. The instructor offers an external check on procedural adherence and a fresh perspective for refining or enhancing your techniques. If you partner for training with someone you don't normally fly with—a smart idea when possible—you gain another viewpoint and example to observe. It can break you out of a rut, stem procedural drift, trigger ‘ah-ha’ moments, and put new tools in your kit. Approached with an open and engaged mind, every sim recurrent visit will refine how you fly, often in ways unexpected.

“Practice until you can do it right, then keep practicing until you can’t do it wrong.” This is a favorite among musicians. I like the commitment and perfectionism themes here—maybe the number of hours spent practicing even becomes a bragging point(?!). But it's too narrow for flying. If the piano catches fire mid-concerto, some of the keys inexplicably stop working, or there's an unexpected switch to a musical score never seen before, all that repetition of the familiar isn't especially helpful. In fact, it might help facilitate a big audience let-down. You can't completely ‘practice the challenge’ out of flying. Sure, sound habits built through repetition free up capacity to improve situational awareness and foster confidence. But full readiness also depends on having a deep well of the right knowledge paired with the ability to fluidly and skillfully apply it in demanding scenarios you've never rehearsed. Routine ops are designed to avoid flexing those faculties. But you know what's good for doing precisely that...?

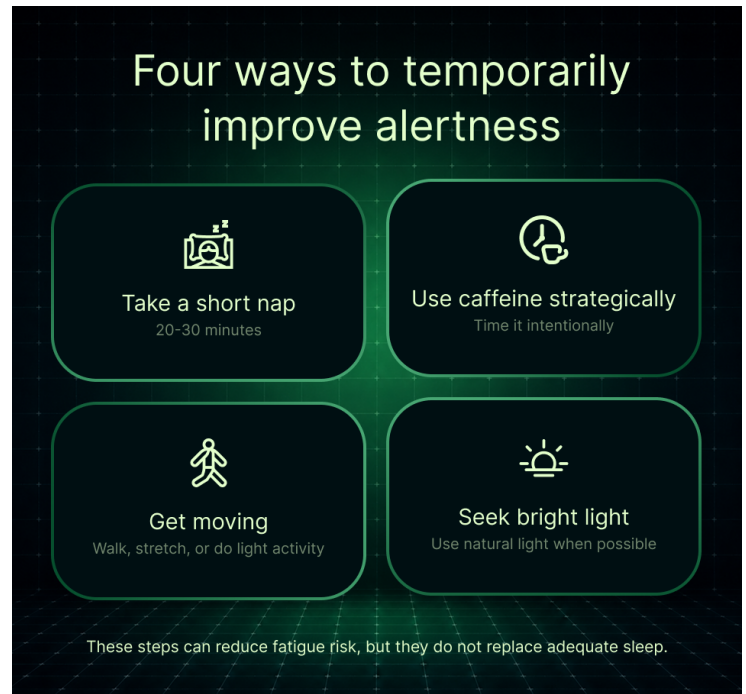
Stay well, fly smart, train with intention. ❖

When both indicate someone is alert and ready, the operator can have greater confidence that the individual is fit for duty. When one suggests elevated fatigue, it creates an opportunity for a conversation rather than a judgement. And when both indicators are positive, the organization has clear evidence that risk mitigation is appropriate. The result is a process that is more transparent, more consistent, and more defensible than relying on feelings alone.

Fatigue Is Not an Automatic “No-Go”

One common misconception is that identifying fatigue automatically means the mission cannot proceed. Fatigue management is about managing risk, not halting operations. Most fatigue risk can be reduced through practical countermeasures that temporarily improve alertness while longer-term recovery is planned. Here are four simple strategies that can help improve alertness before or during a duty period:

- **Take a Short Nap:** A 20- to 30-minute nap can significantly improve alertness without creating prolonged sleep inertia.⁴ When operationally feasible, a brief nap is one of the most effective fatigue countermeasures available.
- **Use Caffeine Strategically:** Caffeine is most effective when used intentionally as a tool, not habitually throughout the day. Timing matters. Consuming caffeine before expected periods of reduced alertness can improve vigilance and reaction time, while avoiding excessive intake late in the day helps protect the next night's sleep.
- **Get Moving:** Even a few minutes of walking, stretching, or light physical activity such as squats increase blood flow and temporarily boost alertness. Movement is particularly helpful during long periods of sitting.
- **Seek Bright Light:** Exposure to bright light—especially natural sunlight—helps stimulate the brain's alerting system and supports circadian rhythms. When sunlight isn't available, bright artificial light tuned to the right color temperature can also provide benefits.



None of these techniques can replace adequate sleep. They can, however, reduce fatigue risk and help crews regain alertness when used appropriately.

Building a Culture of Safety

Fatigue management works best when it is built on trust, science, and consistency. Subjective self-reporting encourages honest communication and reinforces a just safety culture. Objective performance testing provides measurable data that supports operational decisions and removes unnecessary bias. Together, they help answer two critical questions:

"How do you feel?" and "How are you performing?"

Neither answer alone tells the whole story. But combined, they provide aviation organizations with a balanced, evidence-based approach to determining fitness for duty. This culture of safety protects crew members, supports operational decision-making, and ultimately strengthens safety across every flight. ❖

Matthew van Wollen, B.A.Sc., CFA, is a co-founder of Pulsar Informatics and serves as Senior Project Manager and Chief Financial Officer. Over the past ten years he has created tailored fatigue risk management programs for many aviation organizations, including Part 91, Part 135, and Part 121 operators.

¹ Basner M, Mollicone D, Dinges DF. Validity and sensitivity of a brief psychomotor vigilance test (PVT-B) to total and partial sleep deprivation. *Acta Astronaut* 2011; 69: 949-59.

² Van Dongen H, Maislin G, Mullington JM, Dinges DF. The cumulative cost of additional wakefulness: dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation. *Sleep* 2003; 26: 117-26.

³ Manousakis, J.E., et al., Awareness of sleepiness: Temporal dynamics of subjective and objective sleepiness. *Psychophysiology*, 2021. 58(8): p. e13839.

⁴ Duthiel, F., Danini, B., Bagheri, R., Fantini, M. L., Pereira, B., Moustafa, F., Trousselard, M., & Navel, V. (2021). Effects of a short daytime nap on the cognitive performance: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health*, 18(19), 10212.



RESTED AND READY?

MANAGING FATIGUE RISK
IS EVERYONE'S JOB

Fatigue won't step aside just because you're in a cockpit. It follows you in. It builds through interrupted or shifted sleep intervals, travel, stress, long days, and the demands of life. First, make an honest effort to report for every flight with a reserve of alertness. As a vital second layer, foster and operate in a flying culture that actively monitors fatigue, encourages speaking up about it, and prioritizes safety by adapting plans to support rest and recovery when needed.

- ▶ Manage your reserve of alertness, it's your first preflight preparation.
- ▶ Don't ignore sleep debt. Extra recovery time is necessary after disrupted schedules.
- ▶ Reporting fatigue is a mature safety decision, not a weakness. Prioritize safe operational solutions.
- ▶ Deploy basic fatigue science in your organization. Common knowledge and terms build safe cultures.

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October 2026

This Fatigue Risk Management-focused safety poster distributes in the October 2026 issue of AIN magazine.

Download or request hardcopies of it—along with many others—in USAIG's [safety poster archive](#)



Pulsar Informatics is a participant in USAIG's Performance Vector Program. They develop state-of-the-art technology to help individuals and organizations achieve peak performance and reduce fatigue-related risk. Eligible USAIG policyholders can apply their annual benefit to receive a substantial subsidy toward Pulsar Informatics' advanced web and mobile tools for flight department fatigue risk management.



Are you attending?



Visit USAIG at Booth
#2218

Want to assess your fatigue state using the Karolinska Sleepiness Scale (KSS) and the Psychomotor Vigilance Test (PVT) discussed in the preceding article? Visit Pulsar at booth #2763 on Tuesday October 20 at 2PM to measure your alertness and meet with USAIG's safety program director.

Cold Weather, Clear Minds

Air Carrier Tools That All Pilots Can Use to Help Prepare for a Safe Winter Season



Holdover Times (HOTs) contain valuable information that can be used to enhance levels of safety & compliance. The FAA publishes HOTs and associated data prior to the commencement of each winter season.

HALL LEWALLEN

Director of Courseware, Advanced Aircrew Academy

Every winter, business aviation professionals share ramps and runways with some of the largest air carriers, yet the snow falls on everybody and we all crave the comfort of a down jacket while conducting our pre-flight routines. In the same way, a contaminated wing does not check anybody's operating certificate before it stops flying. Consider this: A Part 121 crew works winter inside a framework of required tools, with an approved deicing program and holdover time tables behind every departure into ground icing conditions. Most Part 91 and Part 135 flying carries no such requirement. The tools are published and free, and the rest of this piece is about what they offer crews that are not obliged to use them.

The Clean Aircraft Concept

14 CFR 91.527 and **135.227** prohibit takeoff with frost, ice, or snow adhering to the wings, propellers, or any stabilizing or control surface. That prohibition binds nearly everyone reading this, whether or not you hold an approved program of any kind. CFR 91.527 covers large airplanes, turbojet multiengine airplanes, and fractional program aircraft while 135.227 covers every aircraft flown under Part 135. Note that one carve-out exists for frost under the wing in the area of the fuel tanks, and only where the FAA has authorized it. Deicing fluid removes what has already collected, while anti-icing fluid affords protection when frozen precipitation is actively falling or may begin to fall. The critical question is how much time that protection actually lasts.

Many air carriers mitigate this threat with holdover times (HOTs), which delineate the estimated period during which deicing or anti-icing fluid will prevent frost, ice, or snow from forming or accumulating on treated surfaces. Under **14 CFR 121.629**, an air carrier expecting frost, ice, or snow to adhere must operate within the bounds of an FAA-approved ground deicing program built around HOT tables (save for a rarely used alternative in 121.629(d)). Virtually nothing in Part 91 or Part 135 requires such a program. However, nothing prohibits a Part 91 or Part 135 operator from using the same tables and data, at whatever scale fits the operation.

Part 135 already carries some of that structure. Under 135.227(b), when contamination can reasonably be expected, the crew needs the training required by 135.341 plus one of three things: a pre-takeoff contamination check within five minutes of takeoff, an approved alternative procedure, or an approved deicing program built to the 121.629(c) standard. The common route for a 135 operator is the five-minute check, which satisfies the rule cleanly and which the FAA authorizes through **OpSpec A041**. Knowing the holdover window alongside it tells a flight crew earlier in the taxi whether or not this check may illuminate a true possibility of contamination, which then paves the way for more proactive decision making (vs. having to run through all of this at the hold short line after being cleared for takeoff, with a long line of other planes waiting behind you).

Three Well-Known Case Studies

On November 28, 2004, a Canadair CL-600-2A12 that had arrived from Van Nuys around 0910 sat on the ramp at Montrose Regional Airport in Colorado with snow falling. Temperature was -1°C, dew point -2°C, visibility 1 & 1/4 mile in light snow and mist. During the takeoff sequence at 0958, **the airplane collided with the ground, departed the right side of the runway**, and slid roughly 1,400 feet before coming to rest. The captain, the flight attendant, and one passenger were fatally injured; the first officer and two passengers were seriously injured.

The NTSB found the probable cause to be the flight crew's failure to ensure the wings were free of the ice

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and snow that accumulated while the airplane sat on the ground, with the crew's limited experience operating in winter weather conditions contributing to the accident. This was an on-demand charter with six people aboard, flown under Part 135 by an operator that had an FAA-approved ground deicing and anti-icing program in its General Operations Manual, and whose pilots received company training on the use of holdover times.

Twelve years before Montrose, a key piece of the holdover time equation came out of a similar accident. USAir Flight 405, a Fokker F28, was deiced twice at LaGuardia on March 22, 1992, then sat in a long taxi queue while snow kept falling before beginning its takeoff roll roughly 35 minutes after the final application. **The airplane stalled moments after liftoff and came to rest partially inverted in Flushing Bay.** Twenty-seven people died. The NTSB faulted the decision to take off without positive assurance the wings were clean, and it faulted an industry and its regulator for giving crews no usable way to judge how long fluid protection lasts. That second finding is where the current HOT guidance begins.

On January 2, 2023, a Phenom 300 was pulled from a heated hangar in Provo, Utah and refueled with water droplets visible on both wings. It was outside for about 40 minutes at -1°C in light snow and mist without being deiced before **it rolled left and impacted terrain immediately after takeoff.** The NTSB found the probable cause to be the pilot's failure to deice before takeoff in weather conditions conducive to ice accumulation. That was a Part 91 flight in a different airframe from a different manufacturer, but with similar time exposed to the elements parked on the ramp as the Montrose event.

Cold Fuel, Contaminated Surfaces

Another consideration is that holdover times assume precipitation is falling, yet contamination does not require it. Frost forms on a cold wing under a clear sky, and a wing cold-soaked at altitude can hold fuel far below freezing long after landing. So, the outside air temperature can read well above freezing while the surface above the tanks stays cold enough to freeze whatever settles on it. Ice that forms there is clear, thin, and nearly invisible from the cabin door. The guidelines address pieces of this dilemma, since Table 1 of the FAA HOT Guidelines carries active frost holdover times for all four fluid types and the precipitation tables carry a rain on cold-soaked wing column. But those values are calculated at 1°C and the tables offer no holdover time for that condition at or below freezing. **NTSB Safety Alert SA-006** is direct about these facts. Telling a wet wing from one carrying a thin film of ice by sight alone is, in the NTSB's words, nearly impossible.

The above is why the FAA and the NTSB both point to a tactile check, and why Bombardier's flight manuals have required one on the Challenger series since 2005. It has held up for decades because a hand on the surface gives an answer you can act on. For most business jets that means a stand or a ladder and a bare hand on the upper surface near the leading edge, over the fuel tanks, before the first flight of the day and after any quick turn with fuel still cold.

The 2026-27 Package

The FAA issued its **Winter 2026-27 deicing guidance** in August, replacing last season's material with **Notice 8900.784** (effective August 3) and the companion **HOT Guidelines** (issued August 11). Together they cover current holdover time tables, Degree-Specific HOTs for finer fluid-by-fluid resolution, regression data for extending table values, and allowance time guidance. The FAA rebuilds the set each year around the fluids and formulations actually in service, so the current edition is the one that matches what the truck will spray this winter.

The notice itself is issued to the FAA inspectors who oversee approved programs under Parts 121, 125, and 135. But nothing stops a Part 91 or 135 crew without a program from pulling the same package free from faa.gov and putting it to work. The tables are the part everyone reaches for, and the procedures around them are what give the numbers context. The companion General Information document on the same FAA page covers how fluid is applied, when a pre-takeoff contamination check is called for, and how a tactile check settles the question once conditions run beyond what any table predicts. Reading it alongside the tables is what turns a holdover number into a decision you can defend.

Putting HOTs to Work

Each holdover value keys to fluid type and concentration, outside air temperature, and precipitation type and intensity with the clock running—by regulatory definition—from the start of the final fluid application. That clock's start is where Part 91 and 135 crews are structurally at a disadvantage because nobody is going to hand it to you. The airline crew has a station manager, a company deicing contract, and a trained technician calling the times over a discrete frequency. You have an FBO deice truck and whatever its operator tells you. So what is your remedy? Proactively obtain the fluid type, concentration, the application start time, and any other pertinent information before the truck pulls away. And while you have their attention, did you remember to coordinate the bill?

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A departure inside the window means the fluid should still be holding, though the tables are estimates. Heavy precipitation, high wind or jet blast, and a wing colder than the outside air all shorten what you actually get. If the window expires or precipitation intensifies beyond what the table covers, you owe yourself and your passengers either another application of fluid or a pre-takeoff contamination check. For a 135 operator such a check must be approved under its OpSpecs. The tables are built for departure planning and are meant to be used alongside a pre-takeoff check. An expired window is therefore a decision point rather than a number that decides for you. I treat it as a hard stop anyway. I recommend working through the tables once on a quiet afternoon, just to see how little time Type I actually buys in moderate snow. The number surprises most people the first time, and it's best absorbed when you can sit back and think about it rather than during actual flight operations.

Modern technology can carry much of this load and it's easily put to use. I know of at least one EFB app that packages the current tables, pulls the METAR, returns a holdover time, and runs a countdown with alerts. To my knowledge, neither the FAA nor Transport Canada certifies or approves any holdover time app, so keep the published government tables as your authoritative source and use an app for speed. If you do not carry one already, ask your department management which one they recommend, or otherwise explore this option if it could benefit your operations.

Final Thoughts

None of this requires a new manual or an FAA approval. The 2026-27 guidance is published and current for the fluids in service this winter. A current tablet app will carry the same charts and tables. The fluid type, concentration, and application start time are all available from the truck operator for the price of asking.

The exciting aspect about all of this is that many lessons have already been learned and incredibly useful tools are already published and available to all. What remains is to use them and ensure they're correctly scaled to your operation. Have a safe and enjoyable winter season. ❖

Check Your Knowledge!

(quiz answers on page 11)

1. A holdover time begins:
 - a. At the beginning of the final deicing/anti-icing fluid application
 - b. When the final fluid application is complete
 - c. At the start of taxi
 - d. When takeoff clearance is received
2. Which operators are required by regulation to conduct winter operations under an FAA-approved ground deicing program using holdover times?
 - a. All turbine-powered aircraft operators
 - b. Part 135 on-demand operators
 - c. Part 121 air carriers
 - d. Any operator dispatching into known icing conditions
3. Your holdover time expires while you are still number four for the runway, with snow falling. Protection can no longer be assumed. What are your options?
 - a. Take off promptly, before more contamination accumulates
 - b. Increase Vr as a contingency for degraded lift
 - c. Continue as planned if the fluid still looks glossy
 - d. Another application of fluid, or a pre-takeoff contamination check if your operation is approved to conduct one
4. As required by 135.227(b) and OpSpec A041, a pre-takeoff contamination check must be completed within what period before beginning takeoff?
 - a. 1 minute
 - b. 5 minutes
 - c. 15 minutes
 - d. 30 minutes
5. The FAA's Winter 2026-27 deicing guidance is written for operators holding an approved program. What prevents a Part 91 crew from using the same tables?
 - a. A letter of authorization from the local FSDO is required
 - b. Nothing. The guidance is published and free to anyone
 - c. Only Part 121 certificate holders may access the tables
 - d. The tables must be purchased from the fluid manufacturer
6. Degree-Specific Holdover Times (DSHOTs) provide:
 - a. Runway braking coefficients for contaminated pavement
 - b. Recommended deicing truck maintenance intervals
 - c. Generic holdover times covering all fluid types at once
 - d. Expanded snow-condition holdover times resolved by specific fluid and temperature
7. Your airplane lands after a long flight at altitude and sits on the ramp with an OAT of 2°C and light rain falling. Nothing is forecast to be falling at your departure time. What is the primary contamination concern?
 - a. Clear ice on the upper wing surface above cold-soaked fuel
 - b. Frost on the lower fuselage
 - c. Slush accumulation in the wheel wells
 - d. None, because the temperature is above freezing

The Organization Matters

One underwriter's aviation journey (so far) highlights telltales of organizational best practices

HUDSON MERRICK, USAIG Underwriter

I have been a general aviation underwriter with USAIG for the past three years but have always had a strong passion for the aviation industry. I surrounded myself with it growing up. My father would often take me to Gravelly Point Park, just short of runway 19 at Reagan National Airport, to watch airplanes. It was a captivating showcase of skill, professionalism and coordination focused on getting people into the air and back on the ground safely.

This led me to start private pilot training at a small flight school in Virginia while still in high school. The flight school was primarily an FBO that had five Cessnas. They didn't have much in the way of written standard procedures and many of the instructors were full-time airline pilots who offered CFI services on their off days. I didn't have comparative experience then, but looking back, every instructor taught a different way of doing things. This inconsistency, paired with the challenges of operating in DC area airspace, hindered my learning and progression. The loose organizational structure left training gaps I had to find ways to fill in.

It was quite a change moving to Florida to attend Embry-Riddle Aeronautical University. While focused on my Aviation Business Management studies, I also continued flight training and earned my instrument rating and commercial multi-engine add-on. Embry-Riddle was very different from my first flight school in fleet size and daily operations. A notable change was a focus on training people for a career in aviation rather than getting them a certificate. The flight department ran like an airline, using dispatch tools, flight risk assessments (FRATs), daily internal messaging for important NOTAMs or operational changes, and safety newsletters. A full staff ensured the flight department ran smoothly and safely. There were SOPs for normal flight operations, including standard callouts for every phase of flight, and details on potential cross-country airports. Protocols for a downed aircraft situation and requirements for higher pilot qualifications and experience

to fly on days with challenging weather were spelled out. It was clear a lot of thought and effort had gone into addressing every scenario and it enabled a flight department with nearly 70 airplanes to run smoothly.

Despite the distinctions—including one having twenty times as many daily takeoffs and landings as the other—these two operations had a similar goal to safely and successfully operate as a Part 141 flight school. They both probably believed they were doing the right things, but clearly there were institutional differences in their approaches. This variation between my flight training experiences shows how it is truly up to each operator to determine how issues like operational efficiency, risk, and safety get addressed within their organization.



The contrasts I've experienced serve me well in aviation insurance. Aviation is a dynamic and sometimes difficult industry in which to operate. Risk—and ultimately success—is influenced by how organizations structure themselves. Underwriters look at obvious things like aircraft types, where they are being flown, and pilot qualifications when evaluating risk. But understanding the priorities of

the operation is also important. If the end goal is a safe flight from point A to B, what is being done to support and enable that goal? How much effort has gone into developing standards and preparing for contingencies to lower the chance of an accident? Each operation is different and there are many ways of interpreting the path to the goal. A key underwriting question, though, is whether people in the organization are unified around a sensible and consistent operating model, or if they're just 'getting it done.'

Many of us at USAIG are pilots and use aircraft to support our roles. Flying to client visits is a great way to stay proficient while enabling a firsthand view of policyholder operations. A colleague and I fly a C182 based in the Atlanta area. He flew Part 121 for several years and we are both former students of Embry-Riddle. We implement many of the same practices instilled from our training and used by airlines, such as company

SOPs, SMS, and CRM. These are things that can be scaled and adapted as standard practices, even in a small operation like flying our Cessna. However, USAIG implemented them across our small and dispersed flight operation to boost safety through standardization. It requires a team effort where tools and methods for safe operations are defined and implemented by company leaders, and pilots individually commit to using them to guide successful flights.

I'm grateful for the way my training ultimately worked out. I was pushed by a unique flight school in difficult airspace, which was then followed by a structured program with consistent standards. That forged a habit when I fly to try and understand all relevant hazards and leave no question unanswered about foreseeable contingencies. While every policyholder is different, I take a similar approach when evaluating risk with our insureds. It's important to gauge the extent to which they've worked to understand their own risk and what's being done to manage it. Safety is not just a worthy goal, but also an ever-evolving part of the industry. Whether through technology or organizational refinements, it's something that can always be improved. Being a safe and smart operation at any level demands skill, forethought, and professionalism both individually and organizationally. It requires staying aware of and open to advancements in industry practices. It means getting and keeping everyone on the same page. Operators that put in the work and do those things lower their risk from an insurance perspective while at the same time raise their reputation, dependability, and safety. ❖

Keeping Your Head in the Game When Life Gets in the Way

Humans In the Loop

JENNY SHOWALTER
Founder, Showalter Business Aviation Career Coaching

Imagine being at FL 400 over the Atlantic, returning from an international trip with the boss, when he walks into the cockpit and delivers some unexpected news. He's sorry to say that the airplane's being sold and you're losing your job.

Talk about terrible timing! There are still hours left in the flight and you're responsible for getting everyone safely home. But now your mind is racing, making it much harder to focus on the task at hand.

The boss says he's going to "take care of you" and not to worry, but when will the airplane sell? How much time do you have? What does this mean for your family? Where will you work next? What does "take care of you" really mean? And how are you not supposed to worry?

All legitimate questions; and not one of them can be answered from FL 400. For now, there is still an airplane to fly and you have to keep your head in the game.

As crazy as this story sounds, it really happened.

Compartmentalization

In aviation, especially for pilots, we are taught to compartmentalize distractions in the name of safety, but sometimes that is easier said than done. My husband, a pilot, says he has a "nothing box" in his head. A place where his mind goes to escape stress, overwhelm, discomfort, or anything else that is bothering him. A place where there is literally nothing.



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As a female, wife, mom, business owner, and classic Type A control freak and over-thinker, the concept of a “nothing box” is totally lost on me. There is always something on my mind, especially at 3 a.m.

While I believe men and women generally are built and think differently, I wonder how much of his “nothing box” is gender-related versus the result of years of pilot training and a checklist-oriented mindset. Either way, while I may occasionally be jealous of his ability to tune things out, I also know that some distractions are easier to tune out than others.

I work with clients dealing with ill spouses, aging parents, uncertain job security, toxic work environments, financial stress, and so much more. Ideally, those distractions get compartmentalized in the name of safety, whether you are flying, wrenching, towing, or providing other essential services in aviation. But we are all human, and sometimes that just isn't possible.

The Mistake

Remember the pilots who learned at 40,000 feet that their airplane was being sold? They did what they were trained to do. They put the news aside as best they could, focused on the flight, and safely completed the trip. But the distraction had affected him more than he realized.

During the flight, the pilot had switched COM 3 from data mode to voice and later missed the routine step of switching it back to data. He didn't realize his mistake until the next flight, when he called for his clearance and didn't get a response. While troubleshooting, he discovered that COM 3 was still in voice mode and realized his error.

This wasn't a pilot who was new to the airplane. He had thousands of hours in type and knew the aircraft and its systems extremely well. That's why missing the step surprised him.

It was a small mistake, quickly corrected with no serious consequence. But when the pilot later told me what happened, he knew exactly why he'd missed something so familiar. His mind had been somewhere else.

We can tell ourselves we're fine. We can believe we've sequestered something in a mental box and moved on. But that doesn't necessarily mean the distraction is gone.

This time, he was lucky. The distraction showed up in a small, easily corrected mistake. But distractions don't always show up in little ways, and the consequences aren't always so forgiving.

Managing Distractions

My mom always said the only things certain in life are death and taxes. I might add distractions to that list. Try as we may, sometimes life has a way of ‘lifing’ at the worst possible moments. So how do you manage distractions in the name of getting the job done safely?

First, acknowledge that the distraction is there. Telling yourself not to think about something rarely makes it disappear. Instead, recognize when part of your attention is somewhere other than where it needs to be. If you are part of a crew or team, it can also help to let others know when you're dealing with personal stress or distraction. You don't have to share the details. Simply communicating that you're having an off day gives others a chance to be more aware.

Then, slow down. *Way* down. Go back to the checklist. Double-check something you might normally do from memory. Ask another crewmember to cross-check you. If you're tired, overwhelmed, or carrying something particularly heavy, acknowledge it rather than assume you can simply push it into a mental box and move on.

It also helps to separate what is important from what is immediate. Losing



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your job is incredibly important. But at 40,000 feet over the Atlantic, there was nothing those pilots could do about it. Safely flying the airplane was the immediate need. The questions about what came next were still there once they were safely on the ground.

You can't always control the distraction. Those pilots certainly couldn't control when their boss chose to deliver life-changing news. What they could control was how they responded to it and where they directed their attention in that moment.

There is a lesson here for the rest of us, too. If you're a leader, a spouse, or anyone in a position to deliver difficult news to someone whose job requires their full attention, choose your timing wisely. Some conversations can and should wait until the airplane is on the ground.

Forced Change

As a career coach, I talk a lot about forced change. Sometimes we choose change, and sometimes change chooses us. That's exactly what happened to my friend and client at 40,000 feet. But here's the thing about forced change. It can open doors we never imagined.

After many years and thousands of hours flying an airplane he loved, my friend recently accepted a new position. He'll fly a new airframe, earn better pay, and, most importantly, his family can remain where they want to live. That forced change opened possibilities he couldn't have seen coming when his boss walked into the cockpit that day.

The other pilot made a different choice. He decided the sale of the airplane was the nudge he needed to retire. Two pilots faced with the same unexpected news, and two very different, but equally positive, outcomes.

I'm continually amazed by our capacity as humans to be resilient. But resilience doesn't mean we stop being human. We worry, get distracted, and feel overwhelmed when life changes without our permission. Resilience is what allows us to keep moving forward anyway.

At 40,000 feet, my friend couldn't solve what was happening to his career. He just needed to keep his head in the game and fly the airplane. Once he was safely on the ground, he could figure out what came next. And sometimes, what comes next is even better than what we left behind. ♦

Quiz Answers

ADVANCED AIRCREW ACADEMY'S AVIATION CHALLENGE

- 1. (a)** The clock starts when the final fluid application begins, so the protection window is measured from that point rather than from when the truck finishes or drives away.
- 2. (c)** In ground icing conditions, 14 CFR 121.629(c) requires air carriers to use an FAA-approved ground deicing/anti-icing program built around holdover times; a rarely used alternative in 121.629(d) permits an outside-the-aircraft check within 5 minutes of takeoff instead. Parts 91 and 135 impose the clean aircraft requirement (91.527, 135.227) without mandating a HOT program.
- 3. (d)** An expired holdover time means protection can no longer be assumed. The options are another round of fluid, or a pre-takeoff contamination check (where the operator holds the approval to conduct one). Part 135 operators are authorized through OpSpec A041. Part 91 has no equivalent approval, though nothing prevents a Part 91 crew from physically checking the surfaces before takeoff.
- 4. (b)** 135.227(b)(1) sets the check at within 5 minutes of beginning takeoff, and OpSpec A041 is the authorization that lets a Part 135 operator use it. The check confirms the wings and control surfaces are free of frost, ice, or snow.
- 5. (b)** Nothing prevents it. The notice and the HOT Guidelines are written for operators with an approved program, but it is published free at faa.gov and any crew can download and apply it, or simply read it to learn how the system works.
- 6. (d)** The DSHOT database expands the snow-condition holdover times, resolved by individual fluid and by degree of outside air temperature, giving finer resolution than the standard tables. Note that operational use of DSHOTS may require specific approval under the regulations applicable to your operation.
- 7. (a)** Air temperature above freezing offers no protection when the fuel in the wing is still well below freezing after descent. The resulting ice forms clear and thin on the upper surface and is nearly impossible to identify by looking. A tactile check may be the only reliable verification, and the rain on cold-soaked wing column in the HOT tables shows how little protection even fresh fluid buys here, with values calculated at plus 1 degree Celsius and none provided at or below freezing.

Advanced Aircrew Academy is a [USAIG Performance Vector](#)-participating service provider offering comprehensive eLearning modules and curricula for business aviation professionals. Customized online courses, training materials, and scenario-based training improve crew skills in areas such as crew resource management, emergency procedures, and operational effectiveness. Their extensive and adaptive training catalog has eLearning for every person in your flight department.



Don't Count on Keeping Secrets

Lessons Learned

DAVID JACK KENNY

Investigations of aircraft accidents usually begin somewhere near the place and time the accident actually occurred. The FAA and NTSB are notified by various parties on the scene: first responders, witnesses, the aircraft's operator, and the pilots themselves if they escaped serious injury. The severity of the crash, the size of the aircraft, and the impact on local communities are among the factors that determine the scope of the response. A report by an FAA inspector might be enough to resolve a pranged landing on a student solo, while an NTSB 'go team' is likely to be scrambled if a jet goes down in a populated area.

It's understandable that pilots aren't keen to have accidents on their records, and not just because it's obviously better not to have had one. Even aviators who deserve (and receive) great credit for managing emergencies not of their own creation would likely just as soon not have to spend time explaining it, whether that's to investigators or in some future job interview. And naturally, pilots who were the authors of their own misfortunes will be even less eager to publicize that fact. If no one was there when it happened and the aircraft made it back to base, it can be tempting to pretend the whole thing never happened – tempting, if not necessarily wise.

In September 2025, someone who chose to remain anonymous notified the FAA that a Cessna 650

corporate jet tucked into a hangar at the Airlake Airport in Lakeville, Minnesota (KLVN) was being repaired after damage that strongly suggested it had suffered an accident – one which had never been reported to the NTSB as required by 49 CFR Part 830. Photographs taken by the responding FAA inspector documented that the outer pane of the jet's left windshield had been shattered; the leading edges of both wings were severely dented and had been removed; and small impact craters pockmarked the radome and vertical stabilizer. The radome had also been removed; it was photographed resting on a shelf above a personnel door.

In a Memorandum of Record, the NTSB Senior Air Safety Investigator tasked with pursuing the case noted that the required Pilot/Operator Accident/Incident Reports (Form 6120) "... were received from the pilots and operator months after the accident and only after requests for its submission." Between December 21 and December 24, his agency finally received formal statements detailing the events of the previous June 13.

The Citation had taken off from Harry Reid International Airport in Las Vegas, Nevada (KLAS) on a Part 91 IFR flight plan to KLVN at about 15:30 Mountain Daylight Time. One passenger was in the cabin. The left seat was occupied by a 58-year-old male airline transport pilot with 13,400 hours of accumulated experience, holder of seven civilian type ratings and

authorizations to fly two models of military jets registered in the experimental exhibition category. He also held a flight instructor certificate with single-engine, multiengine, and instrument airplane ratings.

In the right seat was a 26-year-old female commercial pilot with privileges for single-engine and multiengine airplanes and 1,172 hours of flight time. She also held an instructor's certificate with single-engine and instrument airplane ratings. In subsequent discussions with the NTSB senior investigator, both she and her attorney took pains to point out that she was not type-rated in the Citation and was receiving dual instruction rather than



NTSB docket photos documented considerable skin, windscreen, and leading edge damage.

Continues next page

acting as a required crew member. This was apparently not the first time she'd done so, as her flight experience grid on Form 6120 listed 7.8 hours in the accident make and model.

By both pilots' accounts, the first hour of the flight was uneventful. The pilot receiving instruction recalled having been in visual conditions until they approached the area of a convective SIGMET near the Colorado-Nebraska border, where a line of severe thunderstorms had formed. The pilot in command tried to cross above the storms at FL 430 only to encounter severe turbulence; his student reported that they'd flown into "another layer above the presumed top." He descended to FL 410, where the turbulence continued unabated and was accompanied by "heavy hail" that caused the damage shown in the photographs. In response, he slowed the aircraft from Mach 0.75 to Mach 0.68 and descended further to FL 350, where archived flight track data suggest that conditions may have improved. Rather than land to inspect the aircraft, he decided to continue for about another hour – some 495 nautical miles – to the airplane's base at KLVN, where they landed safely. There were no injuries to either pilot or the sole passenger.

For readers lucky enough never to have seen a copy of Form 6120, the last block on page 8 requests "OPERATOR/OWNER SAFETY RECOMMENDATION (How could this accident/incident have been prevented?)". The pilot receiving instruction, whose account of the accident sequence states that she "was unaware of a storm cell in front of us," responded: "Stay away from convective weather systems along our path [and] be aware of all weather related to our flight." Sound recommendations both, but the PIC's were at least as sound and more specific. He acknowledged that "This could have been prevented by diverting 80-100 miles north instead of attempting to overfly."

The professional embarrassment of that admitted miscalculation – echoed by the NTSB's citation of "The pilot's improper judgment" in its finding of probable cause – would not have made most of us more eager to bring it to the attention of the authorities, especially after the airplane made it home with nobody hurt. But there might have been a second reason in this case. The Cessna 650's type certificate requires a two-pilot crew, and as the pilot in the right seat and her attorney went out of their way to emphasize, only one qualified airman was in the cockpit. The NTSB noted that fact in its report – without citing it as having contributed to the accident.

The safety recommendations in the PIC's report – filed more than six months after the fact and three months after the FAA followed up on the anonymous tip of an unreported accident – go on to state that "We have debriefed the incident with the pilots, operator, and FAA." The right-seat pilot's attorney advised the senior NTSB investigator that "My client and I have met with the FAA, which has closed its file on this matter." Any disciplinary action that might have resulted is not a matter of public knowledge – but it's not hard to imagine that the discussions during that "debrief" could have become uncomfortable. ❖

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